

1 **AMENDMENTS TO THE CLAIMS**

1-34 (Canceled).

- 1 35. (Currently Amended) A method of characterizing a large group of biological cells,  
2 comprising:
- 3 a) separating the cells so that the cells of the large group are preponderantly separated from each  
4 other;
- 5 b) characterizing each cell according to an aspect of the vibrational spectrum of each cell,  
6 wherein the vibrational spectrum of each cell is analyzed for indications that the cell is  
7 in a cell division stage, and;
- 8 c) statistically analyzing the characteristics of the [groups] cells.

- 9 36. (Original) The method of claim 35, wherein the results of the statistical analysis is the  
10 percentage of the cells of the group which are in a cell division stage.

- 1 37. (Previously Amended) The method of claim 36, wherein the indication that a cell is in a cell  
2 division stage is the presence of a signal indicating DNA in the vibrational spectrum .

- 1 38. (Original) The method of claim 37, wherein the separated cells are located according to the  
2 fluorescence of the cells.

- 1 39. (previously added ) The method of claim 35, wherein the vibrational spectrum of each cell is

- 1 the recording of an infrared absorption spectrum for each cell.
- 2 40. (previously added ) The method of claim 39, wherein the results of the statistical analysis is
- 3 the percentage of the cells of the group which are in a cell division stage.
- 1 41. ( previously added ) The method of claim 40, wherein the indication that a cell is in a cell
- 2 division stage is the presence of a signal indicating DNA in the infrared absorption spectra.
- 1 42. ( previously added ) The method of claim 41, wherein the separated cells are located
- 2 according to the fluorescence of the cells.
- 1 43. (previously added ) The method of claim 35, wherein the vibrational spectrum of each cell is
- 2 the recording of a Raman spectrum for each cell.
- 3 44. (previously added ) The method of claim 43, wherein the results of the statistical analysis is
- 4 the percentage of the cells of the group which are in a cell division stage.
- 1 45. ( previously added ) The method of claim 44, wherein the indication that a cell is in a cell
- 2 division stage is the presence of a signal indicating DNA in the infrared absorption spectra.
- 1 46. ( previously added ) The method of claim 45, wherein the separated cells are located
- 2 according to the fluorescence of the cells.

1 47. ( currently amended ) A method, comprising:  
2 locating a very large number of separated cells with a location means;  
3 illuminating the cells with light;  
4 recording light emitted from the cells; and  
5 characterizing the vibrational spectrum of the light emitted from [the cells] each cell located by  
6 the location means, wherein the vibrational spectrum is analyzed for indications that the  
7 cell is in a cell division stage.

1 48. ( previously added ) The method of claim 47, wherein the vibrational spectrum  
2 characterization means comprises a means for generating and for transmitting infrared  
3 light through each cell.

1 49. ( previously added ) The method of claim 48, wherein the means for generating infrared  
2 light comprises a first laser having a first defined infrared wavelength.

1 50. ( previously added ) The method of claim 49, wherein the first laser is pulsed when the  
2 location means locates a first cell in a position to be characterized by the first laser.

1 51. ( previously added ) The method of claim 49, wherein the first defined wavelength  
2 comprises a wavelength wherein DNA is highly absorbing.

1 52. ( previously added ) The method of claim 51, wherein a second laser having a second  
2 infrared wavelength is pulsed to characterize the cell, wherein the second infrared  
3 wavelength comprises a wavelength wherein RNA is highly absorbing.

- 1 53. ( previously added ) The method of claim 48, wherein the means for generating infrared  
2 light comprises a third laser having a broad band infrared wavelength range.
- 3 54. ( previously added ) The method of claim 53, wherein the third laser is pulsed when the  
4 location means locates a first cell in a position to be characterized by the laser.
- 1 55. ( previously added ) The method of claim 54, wherein the broad band infrared wavelength  
2 range includes a wavelength wherein DNA is highly absorbing.
- 1 56. ( previously added ) The method of claim 55, wherein the broad band infrared wavelength  
2 range includes a wavelength wherein RNA is highly absorbing.
- 1 57. ( previously added ) The method of claim 56, wherein the infrared absorption spectrum of  
2 each cell is recorded.
- 1 58 ( previously added ) The method of claim 57, wherein the infrared absorption spectrum of  
2 each cell is analyzed for indications that the cell is in a cell division stage.
- 1 59. ( previously added ) The method of claim 58, wherein the percentage of the cells in the cell  
2 division stage is calculated.
- 1 60. ( previously added ) The method of claim 59, wherein the indication that a cell is in a cell  
2 division stage is the presence of a signal indicating DNA in the infrared absorption  
3 spectra.
- 1 61. ( previously added ) The method of claim 47, wherein the location means is a fluorescence  
2 activated sorting method
- 1 62. ( previously added ) The method of claim 47, wherein the vibrational spectrum

1 characterization means comprises a means for illuminating the cells, and a means for  
2 analyzing the Raman scattered light emitted from the cells.

1 63. ( previously added ) The method of claim 62, wherein the means for illuminating the cells  
2 comprises a first laser having a first defined wavelength.

1 64. ( previously added ) The method of claim 63, wherein the first laser is pulsed when the  
2 location means locates a first cell in a position to be illuminated by the first laser.

1 65. ( previously added ) The method of claim 64, wherein the Raman spectrum of each cell is  
2 recorded.

1 66. ( previously added ) The method of claim 65, wherein the Raman spectrum of each cell is  
2 analyzed for indications that the cell is in a cell division stage.

1 67. ( previously added ) The method of claim 66, wherein the indication that a cell is in a cell  
2 division stage is the presence of a signal indicating DNA in the Raman spectra.